

## **PATTERN OF ROAD TRAFFIC ACCIDENT IN KELANTAN (1997-2003)**

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### **ABSTRACT**

*Road traffic accidents (RTAs) are among the ten cause of death in Malaysia. It is a shocking fact that RTAs killed more people in other developing countries too, every year, than war and disease. More than 20 million people are severely injured or killed on the world's roads each year. The aim of this study was to determine the mortality and morbidity pattern of road traffic accidents from 1997 to 2003 in Kelantan. The retrospective study was conducted in which the relevant data were collected by reviewing the records on road traffic accident (RTA) from the year 1997 to 2003. The records included information about monthly data such as number of fatal and nonfatal accidents and distribution of accidents by year. Data gathered were input into SPSS version 11 and simple linear regression to explore the trend in data analysis. A total of 40,452 accidents were reviewed during seven years period (1997-2003). The numbers of non fatal accidents showed an increasing trend from 1998 to 2003 except 2001, decreased in trend. Kelantan experienced a continuous increase of fatal accidents from 1997 until 2000, followed by a fluctuation between 2001 and 2003. The numbers of fatal and nonfatal accident cases showed no pattern, but total cases for both accidents increased by months within the one calendar year. Road traffic accidents are still a major public health problem. There were no systematic and consistent seasonal pattern of the mortality and morbidity of accidents. There were significant increasing trend throughout the months for both fatal and nonfatal accident cases within one year calendar.*

**Keywords:** *Pattern, Mortality, Morbidity, Road Traffic Accident*

### **INTRODUCTION**

Road traffic accidents (RTAs) are among the ten cause of death in Malaysia (JKNK, 2001). In the year 2001, the total number of road accidents was 265,175 with fatalities of 5230, seriously injured 6942, and slightly injured 30,684. It is shocking fact that RTAs killed more people in other developing countries too, every year, than war and disease. More than 20 million people are severely injured or killed on the world's roads each year. Road traffic accidents constitute one of the major social problems in Malaysia (Radin Umar, 1994). Malaysia ranks fourth after Australia, Brunei and New Zealand, in terms of accident fatalities per 10,000 populations, and ninth in terms of accidents per 10,000 vehicles after Sri Lanka, India, Pakistan, Indonesia, Philippines, Hong Kong, Thailand and Singapore (WHO, 2002). This article addresses the road traffic accidents in Kelantan from 1997 to 2003. The objective of this study is to determine the mortality and morbidity pattern of road traffic accidents from 1997 to 2003 in Kelantan.

### **METHODS AND ANALYSIS**

The retrospective study was conducted in which the relevant data were collected by reviewing the records on road traffic accident (RTA) from the year 1997 to 2003. The records included information about monthly data such as number of fatal and non fatal accidents and distribution of accidents by year. Data gathered were input into SPSS version 11 and simple linear regression to explore the trend in data analysis.

### **RESULTS**

Fatalities and injuries sustained in road traffic accidents have a major health hazard. A review of traffic accident and their resulting casualties in Kelantan between 1997 and 2003 reveals the following. The records of the traffic authority show that 40,452 casualties were involved in the accidents. Non fatal accidents increased by more than fifty percent, from 4965 in 1997 to 6633 in 2003 (see Figure 1). Kelantan experienced an increase in non fatal accident between 1998 and 2000, followed by a decrease in 2001. However, numbers of non fatal accidents showed an increasing trend from 1998 to 2003. The highest percentages of non total accidents (17.1%) occurred in 2003, while the lowest percentages of non total accidents (12.1%) occurred in 1998. On the other hand, the highest percentages of fatal accidents (16.3%) occurred in 2002, while the lowest (11.3%) occurred in 1997.

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Furthermore, fatal accidents increased about one-fold, from 194 in 1997 to 273 in 2003. Kelantan experienced a continuous increase of fatal

accidents until 2000, followed by a fluctuation between 2001 and 2003.

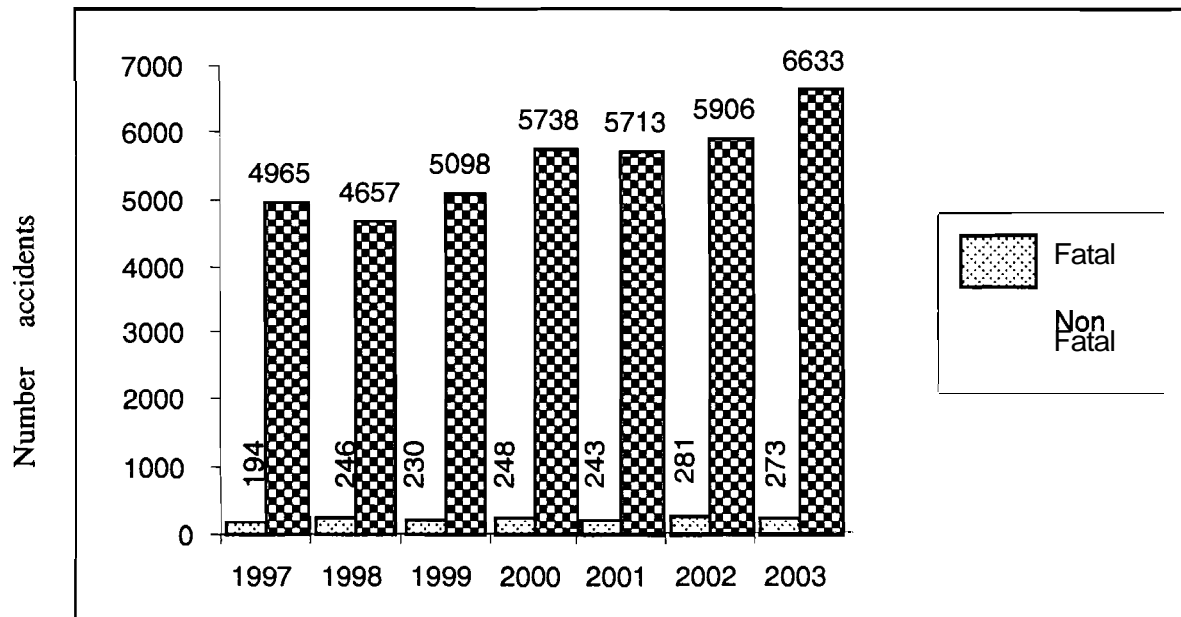


Figure 1 Pattern of Fatal and Non Fatal Accident in Kelantan by year (1997-2003)

The linear trend by using simple linear regression found that significant increasing trend throughout the months about one case (0.08 x 12 months) and six cases (0.459 x 12 months) for fatal

accident and non fatal accident, respectively as presented in Table 1 and Table 2. These results were fit with the data.

Table 1: Association Of Fatal Road Traffic Accident Cases And Month By Using Simple Linear Regression

Variable	Regression coefficient (b)	95% CI	T statistic (df)	p value
Month	0.08	0.04-0.13	3.55 (1)	0.001

Analysis of simple linear regression: residual plot suggest SLR fits well.  $R^2$  of the model is 0.13. Dependent variable is number of fatal road traffic accident cases and independent variables is months in sequence number.

Table 2: Association Of Non Fatal Road Traffic Accident Cases And Month By Using Simple Linear Regression

Variable	Regression coefficient (b)	95% CI	T statistic (df)	p value
Month	0.46	0.19-0.72	3.48 (1)	0.001

Analysis of simple linear regression: residual plot suggest SLR fits well.  $R^2$  of the model is 0.12. Dependent variable is number of non fatal road traffic accident cases and independent variables is months in sequence number.

## DISCUSSION

Road traffic accidents are an important problem all over the world. It's a leading cause of death, and serious morbidity among population in developed world (WHO, 2002). By considering road traffic accidents in relation to population, the number of vehicles or **traffic** volume, some interesting similarities and differences appear throughout the world. Road traffic accidents are resulting in injury or fatality, property damage, loss of man power and productivity. Road traffic accidents are also important for the society. There are enormous costs linked to road traffic accidents. Furthermore, it also causes problem for the health sector, high medical expenses, given that victims of road accidents occupy a high proportion of hospital beds and medical staff which are strongly needed for general health care in developing countries. Road accidents significantly inhibit economic and social development. They are associated with millions of premature deaths and injuries, billion of ringgits in medical costs, strain in welfare services, low economic growth and poverty (WHO, 2002). The state of Kelantan stands in third place in the country in recording lowest fatal accidents. The highest road traffic accidents are recorded in **Selangor** and Johor while Perlis recorded the lowest (PDRM, 2002). Explanations for the high percentage of non fatal accidents are, because of the rapid growth in population, industrialization and motorization. The increase in population and motorization led to a consequent increase in the number of road traffic accident. During the period of 1997-2002 the population increased from 21,665,600 to 23,263,600 and the vehicles registered also proportionately increased by half times from 8,550,469 to 11,854,016 (PDRM, 2002). In fact, the rate of road traffic injury has been clearly made by Nantulya *et al.* (2003) in their study about the global challenge of road traffic injuries. They reported that the rates of road traffic injuries have increased markedly in the developing world This increased in road traffic injuries were due to increased automobile traffic, and also increased in population growth. However, our study did not calculate for fatality and non fatality rates. To calculate rates of

fatality and non fatality accidents, the denominator should either be based on per 100,000 populations, 10,000 motor vehicles or 100 million kilometers, for data to be reasonable and reliable. There calculations would enable descriptions of fatal and non fatal rates of accident be expressed in terms of its magnitude.

## LIMITATIONS AND CONCLUSION

This study was limited to data items available in the **dataset**. The data do not provide a complete picture of pre-accident, accident and post accident details. Whereby, the written reports were made whilst collecting physical conditions information. We could not identify the specific and details of the accidents since these data are not available in **POL27**. Data were not properly kept. This resulted in lost data due to incidental damage, lost, being eaten by insects and etc. Some computer records when existed were infected by viruses, as the computers were used for mixed purposes and not only for data handling and keeping of records. Such data could not be retrieved for analyses. There were no systematic and consistent seasonal pattern of the mortality and morbidity of accidents. There were significant increasing trend throughout the months for both fatal and non fatal accident cases within one year calendar.

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